

1.0 Bluewater

Bluewater Site Long-Term Custody Compliance Requirements

The following list comprises the long-term custody compliance requirements for the Bluewater site as defined in Section 3.2 of the site Long-Term Surveillance Plan:

1. Annual site inspection.
2. Annual inspection report.
3. Follow-up inspections and inspection reports, as necessary.
4. Site maintenance as necessary to sustain design functions.
5. Emergency measures in the event of catastrophe.
6. Environmental monitoring as required.

The Bluewater site long-term custody compliance requirements were fulfilled for 2003 as follows:

1. The site was inspected on May 15, 2003, in accordance with the inspection procedure as outlined in Section 3.3.2 of the Long-Term Surveillance Plan (LTSP).
2. This document serves as the annual inspection report.
3. No follow-up inspections were necessary.
4. No maintenance was necessary to sustain design functions.
5. No catastrophic events necessitated emergency measures.
6. The required ground water monitoring, as specified in Section 3.7.1 of the LTSP, was completed and the results are presented in this report.

Bluewater Site Inspection Results

M. P. Plessinger (Chief Inspector) and R. K. Johnson (Assistant Inspector), both of S.M. Stoller Corporation, the Technical Assistance Contractor at the DOE Grand Junction Office (GJO), conducted the inspection on May 15, 2003. The inspection was conducted in accordance with the *Long-Term Surveillance Plan for the DOE Bluewater (UMTRCA Title II) Disposal Site near Grants, New Mexico* (July 1997) and procedures established by DOE to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.28 (10 CFR 40.28).

The purposes of the inspection are to confirm the integrity of visible features at the site, to identify changes in conditions that may affect site integrity, and to determine the need, if any, for maintenance or additional inspections and monitoring.

Thirteen photographs are included in the Bluewater report. The photographs are referred to in the text of the report and on Figures 1–1 and 1–2 by photograph location (PL) numbers.

High winds occurring during the inspection were blowing a significant amount of sand and causing dust clouds (PL–1 and PL–2). Consequently the features shown in some of the photographs included in this report are less distinct than they would be under better weather conditions.

Entrance Gate, Access Road, and Access Gate

The entrance gate (at County Road 334) is a steel, double-swing stock gate. A chain and padlocks belonging to DOE and various utility companies that have rights-of-way across the site secure the gate. The access road leads from the entrance gate to the access gate. The access road is an all-weather road surfaced with crushed basalt and extends northward, along a narrow strip of DOE property, for approximately 1,700 feet to the site access gate. The access gate also is a steel, double-swing stock gate secured by padlocks keyed the same as the entrance gate. The entrance gate, access road, and access gate are in excellent condition. A significant amount of windblown sand had accumulated at the entrance gate (PL–3) and to open the gate, the inspectors had to force it through a small sand dune.

Perimeter Signs

Fifty-five perimeter or warning signs, designated P1 through P52 on [Figures 1–1 and 1–2](#) (including perimeter signs P2A, P9A, and P9B), are posted at access points along right-of-way intersections with the site boundary and around the main and carbonate tailings disposal cells. At the Bluewater site, all signs are identical and convey the information typically conveyed on entrance signs at other Long-Term Surveillance and Maintenance (LTS&M) Program sites.

The signs are mounted about 5 feet above the ground on steel posts set in concrete. Posts for signs along the property boundary are located about 5 feet inside the actual boundary line. The remaining 42 perimeter signs are spaced about 500 feet apart around the main and carbonate tailings disposal cells about 100 feet from the toe of the cells. All signs are in good condition but the trefoil is starting to fade. The 2001 Annual Inspection Report noted that posts for perimeter signs P14, P15, and P16 are loosening, presumably from being used as rubbing posts by livestock.

Site Marker and Boundary Monuments

A granite site marker is between the southwest corner of the main tailings disposal cell and the northwest corner of the carbonate tailings disposal cell. The marker is in excellent condition.

Twenty-four boundary monuments define the site boundary. These monuments are typically inside the perimeter fence, several feet inside the true corner or boundary line. Inspectors did not rigorously inspect boundary monuments because of the blowing sand conditions. The blowing sand was actively covering many of the monuments during the inspection. All boundary monuments had been located during the baseline inspection and are expected to still exist in their correct positions.

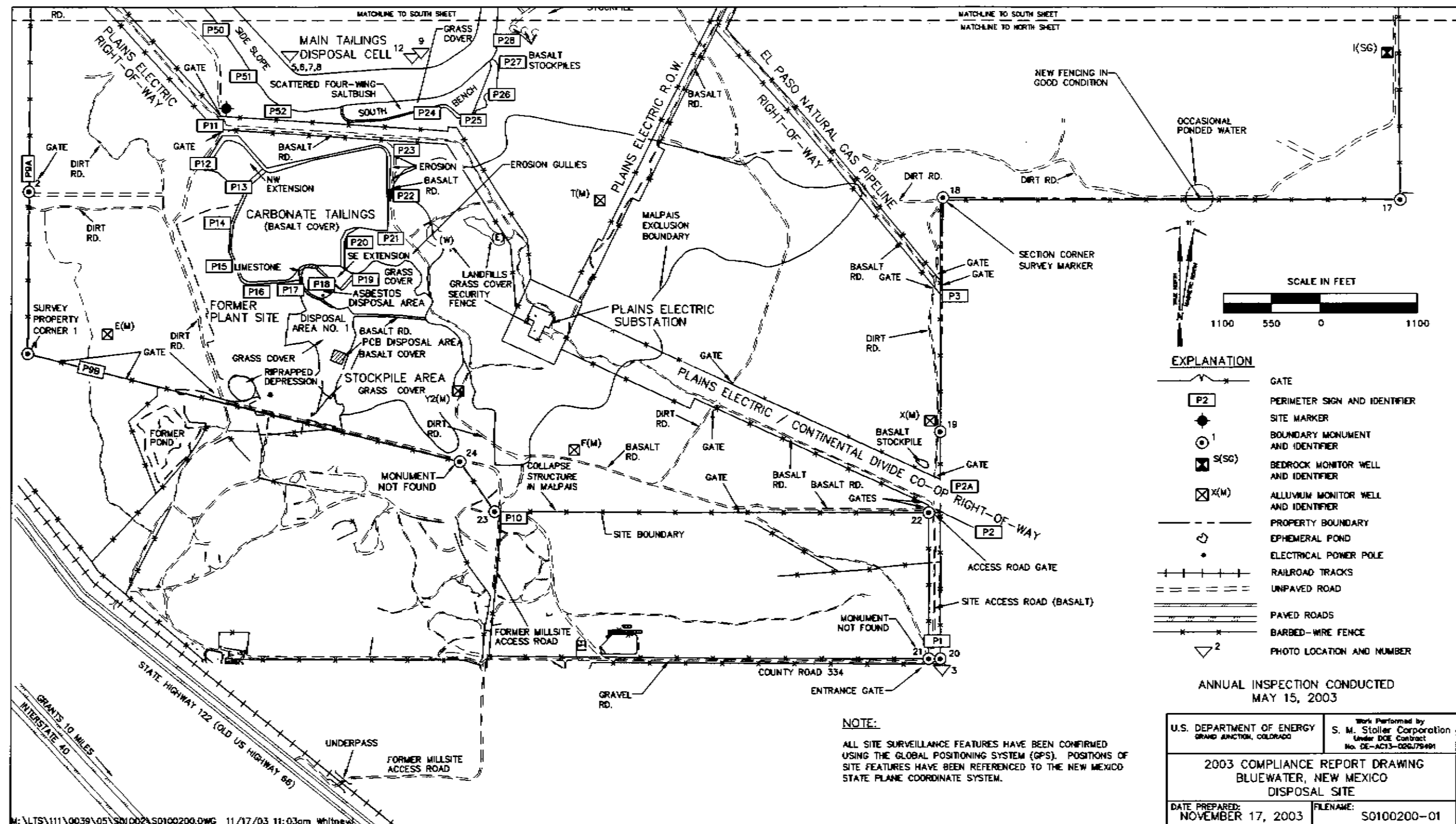


Figure 1-1. Bluewater, New Mexico, South Area, 2003

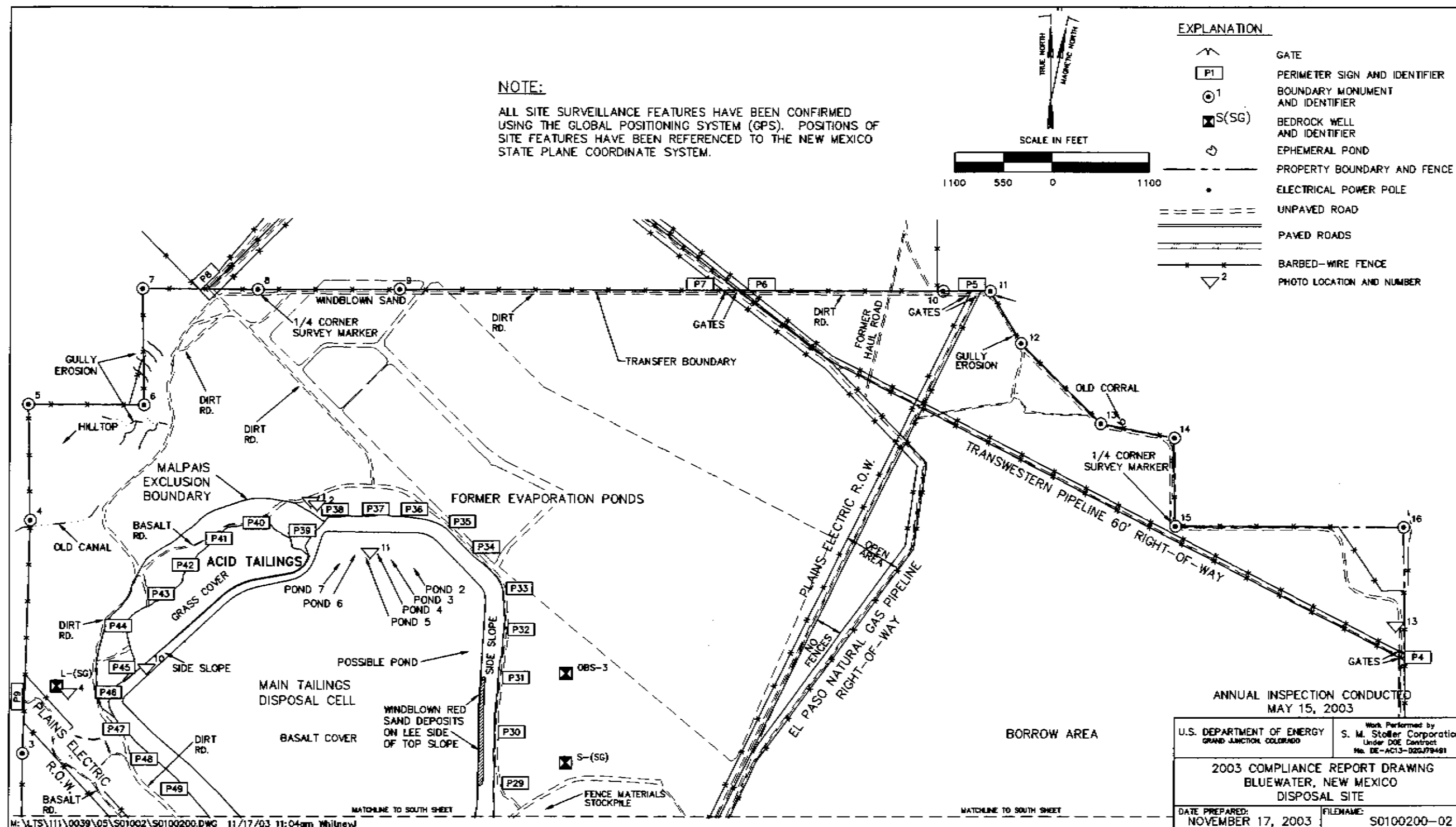


Figure 1-2. Bluewater, New Mexico, North Area, 2003

Monitor Wells

There are nine monitor wells at this site. All are inside the site boundary. The five wells screened in the alluvial aquifer include the letter "M" in the well identifier: E(M), F(M), T(M), X(M), and Y2(M). The other four wells are screened in the San Andres Limestone-Glorieta Sandstone, which is the bedrock aquifer at the site. The bedrock wells are L(SG), OBS-3, S(SG), and I(SG). The aboveground structures at the wells are in fair condition.

Wells previously had dedicated pumps, flow tubes, and stock tanks to contain purge water. Protective fencing placed around each well in 2001 to mitigate livestock damage was in good condition (PL-4). Tanks were missing from E(M) and Y2(M). Surface support equipment for the monitor wells (wiring and PVC pipes) is weathered and in poor condition but does not impact sampling activities.

Main Tailings Cell, Acid Tailings, and South Bench Disposal Areas

These three disposal areas are contiguous and together constitute one large disposal area of approximately 320 acres. The main tailings disposal cell is covered with basalt riprap and slopes northward (PL-5, PL-6, PL-7, and PL-8). The top slope grade decreases from approximately 3 or 4 percent at the south end to less than 0.5 percent at the north end. The top slopes of the acid tailings (PL-9) and the south bench (PL-10) disposal areas are essentially flat and covered by grass. The side slopes of all three disposal cells are protected by basalt riprap. All three disposal cells are generally in excellent condition.

Widely scattered dead plants are present on the main tailings disposal cell, mostly on the east side slope. The plants are predominantly Russian thistle, an annual weed. Neither DOE nor the U.S. Nuclear Regulatory Commission (NRC) considers plant encroachment an issue at this site.

As noted in previous inspections, fine-grained windblown sand has been deposited for about 1,000 feet along the top of the east side slope of the main tailings pile. Mostly, the sand surface is 3 to 4 inches beneath the riprap surface, but occasionally the sand fills the riprap interstices to the top. This accumulation is insignificant at this time. Plants are not preferentially establishing in the sand. Because the climate is relatively dry and plant cover upwind from the disposal cell is sparse, sand accumulation may increase. Inspectors will continue to monitor accumulations of windblown sand here and elsewhere on site.

At the north end of the main tailings disposal cell, the top slope flattens to less than 0.5 percent. In previous years, inspectors found water ponded in depressions in this area. This year the depressions did not contain standing water.

The low spots are the result of settlement or an artifact of construction. Slimes from the settling ponds were placed in the northern part of the main tailings disposal cell and areas containing slimes are more likely to settle than areas containing drier waste materials. However, a grade of less than 0.5 percent is hard to achieve over an area as large as the north end of the main tailings disposal cell. Either mechanism could account for the depressions. One small depression that was observed for the first time during this inspection has a distinctly bowl-like shape (PL-11). This depression is most likely the result of settlement.

Inspectors will continue to monitor for ponding on top of the main tailings disposal cell. Given that evaporation greatly exceeds precipitation in this area, ponding is believed to be infrequent and brief and therefore not a significant concern. Visual observations of settlement magnitude will continue.

Carbonate Tailings Disposal Cell, Asbestos and PCB Disposal Areas, and Landfills

The top and side slopes of the carbonate tailings disposal cell are covered by basalt riprap (PL-12). The top, for the most part, slopes gently eastward. The small northwest and southeast extensions slope in their respective directions. The carbonate tailings disposal cell and its extensions are in excellent condition.

The asbestos disposal area is a bowl-like feature or depression just south of the carbonate pile. The north, west, and south side slopes of this depression are covered by limestone riprap; the bottom of the bowl is grass covered. It is in excellent condition.

The small riprap-covered polychlorinated biphenyl (PCB) disposal area is in excellent condition. The two landfills in grass-covered depressions east of the carbonate pile also are in excellent condition.

Erosion was observed along the east edge of the apron below the carbonate tailings cell during the 2001 inspection. Soil fill appeared to be washing away from the edge of the apron. This does not affect the performance of the apron at this time but inspectors should continue to monitor the area.

Other Areas Inside the Site

Other areas inside the site were inspected by driving the site perimeter road and other roads, including some utility right-of-way roads. Much of the southern and western parts of the site are inaccessible by vehicle because they are covered by basalt flows.

Several utility company rights-of-way cross the site. Stock fences with locked gates enclose these rights-of-way where they intersect one another, cross the site boundary, or cross the perimeter road.

An electric power substation is enclosed by a security fence near the center of the site along the Plains Electric Company right-of-way (Figure 1-1). Fencing around this station generally is in good condition.

Two other disposal areas, Disposal Area Number 1 and the Stockpile Area, are located south of the carbonate tailings disposal cell. Both are grass-covered and in excellent condition.

Inspectors found evidence that cattle and horses had been grazing on the site but no livestock were seen during the inspection (see below, "Site Perimeter and Outlying Areas"). Grazing is not part of the current management plan for this site.

Site Perimeter and Outlying Areas

The perimeter fence, a barbed-wire stock fence set several feet inside the property line, is generally in good condition. In 2001, fences were repaired in several locations, especially along the northwest and western boundaries. During a recent maintenance subcontractor's walkthrough, the fence was found purposefully open in several locations, presumably to allow livestock ingress and egress. A subcontractor has been retained to repair the fencing and periodically check for unauthorized livestock use of site property. If livestock are discovered on the site, the subcontractor will be authorized to remove the animals.

An area along the site boundary at the east end of the site has flooded in the past but was dry this year. A subcontractor repaired approximately 800 feet of the perimeter fence in this area in 2001. The repair remains in excellent condition and is sufficient for keeping cattle out.

The perimeter road consists of a dirt track covered at places with crushed basalt. The road runs along the site boundary in much of the southern and most of the northern and eastern parts of the site. Most of the road is in good to excellent condition, but will require periodic maintenance. In 2001, a culvert was installed where the road was washing out south of boundary monument BM-16. The repair was inspected and remains in excellent condition (PL-13).

The area outside the site boundary for one-quarter mile was visually inspected for erosion, development, change in land use, or other phenomenon that might affect the long-term integrity of the site. None was observed.

Ground Water Monitoring Results

As specified in the LTSP the only sampling required in 2003 was the U.S. Environmental Protection Agency (EPA)-required PCB sampling. The required ground water sampling was conducted on October 17, 2003. PCBs were not detected. Point of compliance (POC) well T(M) was dry and therefore not sampled.

Conclusion

The Bluewater disposal site is in good condition at this time. The occurrence of ponding near the north end of the top of the main tailings pile will continue to be monitored for impacts. EPA-required PCB sampling did not detect PCBs.

Bluewater Inspection Photographs

Table 1–1. Photograph Descriptions for Bluewater, New Mexico, Disposal Site

Photograph Location Number	Description
BLU PL–1	Blowing sand and dust, view north from north end of main tailings pile.
BLU PL–2	Blowing sand and dust, view east from north end of main tailings pile.
BLU PL–3	Entrance gate and windblown sand at County Road 334.
BLU PL–4	Monitor well L(SG) and protective fencing.
BLU PL–5	Top of main tailings pile along southwest edge.
BLU PL–6	Top of main tailings pile, view north.
BLU PL–7	Top of main tailings pile, view east-northeast; blowing dust evident.
BLU PL–8	Top of main tailings pile, view northeast; blowing dust evident.
BLU PL–9	South bench tailings area.
BLU PL–10	Cover over acid tailings.
BLU PL–11	Bowl-shaped depression on north edge of main tailings pile.
BLU PL–12	Carbonate tailings pile.
BLU PL–13	Culvert near BM–16, installed in 2001.



BLU 5/2003. PL-1. Blowing sand and dust, view north from north end of main tailings pile.



BLU 5/2003. PL-2. Blowing sand and dust, view east from north end of main tailings pile.



BLU 5/2003. PL-3. Entrance gate and windblown sand at County Road 334.



BLU 5/2003. PL-4. Monitor well L(SG) and protective fencing.



BLU 5/2003. PL-5. Top of main tailings pile along southwest edge.



BLU 5/2003. PL-6. Top of main tailings pile, view north.



BLU 5/2003. PL-7. Top of main tailings pile, view east-northeast; blowing dust evident.



BLU 5/2003. PL-8. Top of main tailings pile, view northeast; blowing dust evident.



BLU 5/2003. PL-9. South bench tailings area.



BLU 5/2003. PL-10. Cover over acid tailings.



BLU 5/2003. PL-11. Bowl shaped depression on north edge of main tailings pile.



BLU 5/2003. PL-12. Carbonate tailings pile.



BLU 5/2003. PL-13. Culvert near BM-16, installed in 2001.

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